

Physics in action

Marconi's centenary

The second centenary we are able to refer to this year is that of the birth of Marconi, the father of wireless. Guglielmo Marconi was born on 25 April 1874 in Bologna, Italy.

Marconi's involvement with the use of electromagnetic waves for communication came at an early age. His first experiments had some success by the summer of 1895 and in August of that year he was able to transmit Morse code over a distance of $1\frac{3}{4}$ miles, using an earth and an elevated aerial at both transmitter and receiver. Finding the Italian government uninterested in his invention, he came to England in 1896 and filed the first patent for telegraphy using hertzian waves. The technique's success was demonstrated further by transmission across the Bristol channel (8.7 miles) in 1897, between the Isle of Wight and the Lizard (198 miles) in 1901 and finally, in the same year, between Cornwall and Newfoundland.

Commercial exploitation of the new technique was rapid. In 1897 the Wireless Telegraph and Signal Company was founded to exploit Marconi's apparatus and a little later Marconi registered the Marconi Wireless Telegraph Company of America in the USA.

The former eventually became the Marconi Company and the latter, RCA. In 1900 the Marconi International Marine Communication Company was created to exploit the invention for maritime communication. The decade before the first world war saw the first use of wireless in the air, developed further during the war. In 1920 came Britain's first advertised public broadcast and in 1922 Marconi's company and five others formed the British Broadcasting Company, superseded in 1926 by the present BBC. Also in 1922 the Marconiphone Company was founded to satisfy the demand for domestic receivers; this was sold later to RCA and eventually merged into EMI, of which

Marconi was president. Development of television followed and the Marconi-EMI Television Company's system was adopted by the BBC in 1936.

Marconi's gradual retirement to Italy coincided with the formation of Cable and Wireless Ltd in 1929 which merged the interests of the Marconi Company with those of the Empire cable companies, thus eliminating the threat to the latter presented by the contract for an 'Empire wireless chain' awarded to Marconi in 1924. The Marconi Company was sold to English Electric after the second world war and the company's name now survives in the GEC-Marconi Electronics subsidiary.

After 1929 Marconi retired increasingly to Italy from where he conducted microwave experiments and in 1935 demonstrated principles of radar. His health deteriorated markedly during that time and he died on 20 July 1937. A major public tribute to the young Marconi had been a share in the Nobel prize for physics in 1909. A posthumous one, no less impressive, was the closing down for two minutes of wireless stations throughout the world.

Figure 1 Photograph of Marconi taken in London in 1896, showing the original apparatus brought by him from Italy, including the mysterious black box

